PROVINCE OF ALBERTA

HIGH SCHOOL AND UNIVERSITY MATRICULATION EXAMINATIONS BOARD.

DEPARTMENTAL EXAMINATIONS, 1928.

ALGEBRA 2.

Time—Three hours.

Values.

4 **1.** Find the H.C.F. of:

$$x^3-x^2-3x+3,\quad x^3-3x^2+2.$$

5 Find the L.C.M. of:

$$x^2-4,\ x^2-x-2, \text{ and } x^3+2x^2-x-2.$$

5 **2.** (*a*) Simplify:

$$\frac{2}{\frac{1}{x}-\frac{1}{y}}+\frac{y}{1-\frac{y}{x}}-\frac{x}{1-\frac{x}{y}}$$

6 (*b*) If $x=\frac{b-c}{a}$, $y=\frac{c-a}{b}$, $z=\frac{a-b}{c}$

prove that $xyz+x+y+z=0$.

3. In the following formula $C=$ cost price, $S=$ selling price, and $L=$ loss per cent.

$$C=\frac{S}{1-\frac{L}{100}}$$

3 (*a*) Solve the formula for L.

3 (*b*) Find L when $C=96$c and $S=60$c.

10 **4.** In ten years the total population of a town increased 7%. The foreign population decreased from 200 to 150 and the native population increased by 8%. Find the total population at the end of the period.

URRICULUM
54
19
28
am.2
JRR HIST

Values.

5 **5.** (*a*) Find the square root of:

$$24+\frac{16y^2}{x^2}-\frac{8x}{y}+\frac{x^2}{y^2}-\frac{32y}{x}$$

4 (*b*) Find the square root of:

$$18-8\sqrt{5}.$$

5 **6.** (*a*) Solve by completing the square:

$$2x^2+5x=3.$$

5 (*b*) Solve by using formula:

$$5x^2=17x-10.$$

5 (*c*) Solve by factoring:

$$35b^2=9x^2+6bx.$$

8 **7.** *Either* Solve the following equations:

$$x^2+y^2=5.$$
$$2xy-y^2=3.$$

Or Solve the following equations:

$$x^3-y^3=56.$$
$$x^2+xy+y^2=28.$$

7 **8.** *Either* Simplify and express with positive indices:

$$\left(\frac{a^{-2}\,b}{a^3\,b^{-4}}\right)^{-3}\div\left(\frac{a\ b^{-1}}{a^{-3}\,b^2}\right)^5$$

Or Find the divisor when the dividend is $y^{\frac{5}{2}}+2y^2-3y-2$, the quotient is $y^{\frac{3}{2}}-y^{\frac{1}{2}}-1$, and the remainder is $3y^{\frac{1}{2}}-1$.

8 **9.** Solve: $\sqrt{x+5}+\sqrt{3x+4}=\sqrt{12x+1}$.

7 **10.** *Either* Find the value of: $\dfrac{\sqrt{5}-2}{9-4\sqrt{5}}$. Given $\sqrt{5}=2.23607$.

Or Rationalize the denominator of:

$$\frac{x^2}{\sqrt{x^2+a^2}+a}$$

Values.

10 **11.** *Either* A rectangular field contains thirty acres. By increasing its length by forty rods and diminishing its width by four rods the area is increased by six acres. What are the dimensions of the field?

Or A man wishing to travel from A to B, 65 miles away, goes by automobile from A to C and thence, on account of a washout, by trolley to B. The route from A to B via C forms a right angle at C. If the automobile averages 20 miles an hour and the trolley 10 miles an hour, and the total time of the trip, exclusive of the time spent at C, is 5½ hours, find the distances AC and CB.

100

Ex libris
universitatis
albertaensis

QUAECUMQUE VERA